CALIBRATION AND DISCRIMINATION TESTING

FIGURE 1 shows the distribution of predicted values (event probabilities) from the risk-adjustment model.

Minimum = 0.0003597 = 0.036%
10th percentile = 0.003654 = 0.365%
Median = 0.023217 = 2.32%
Mean = 0.04352 = 4.35%
90th percentile = 0.102056 = 10.21%
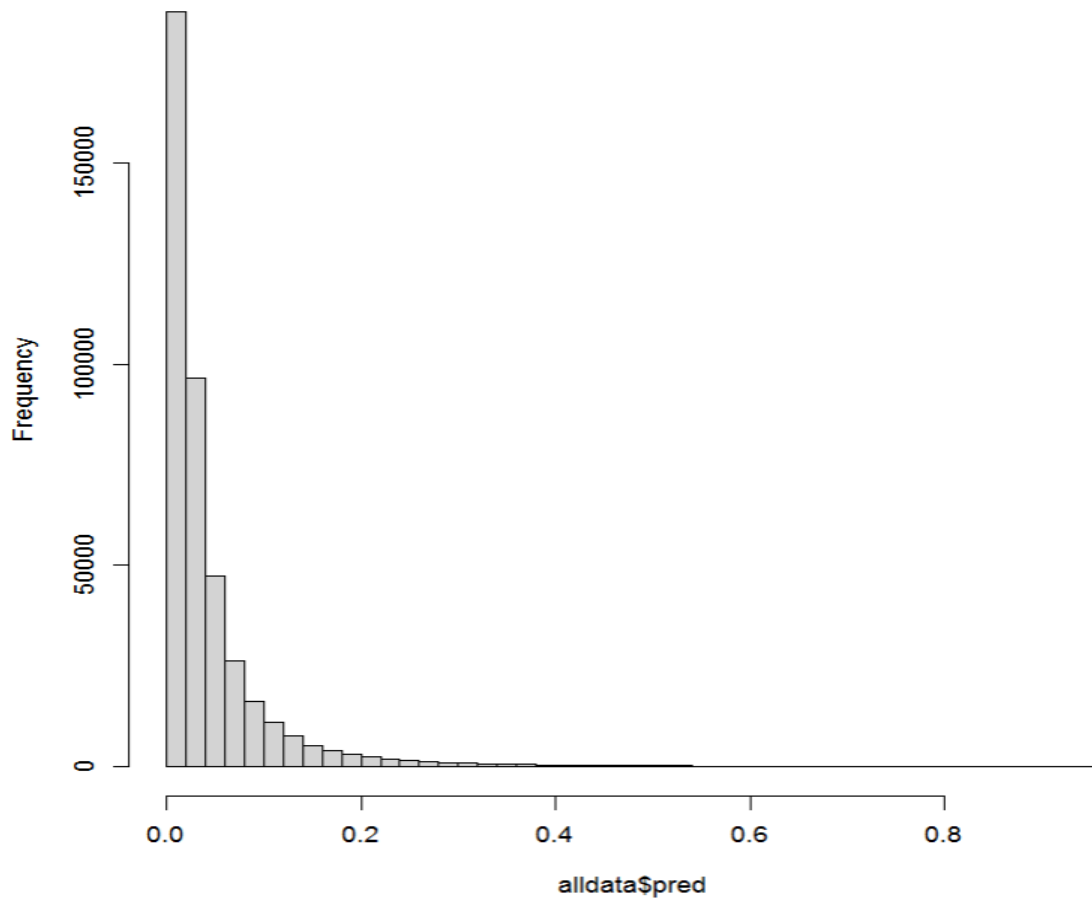Maximum = 0.956601 = 95.66%

Histogram of alldata$pred

FIGURE 2 shows the receiver operating characteristic (calibration) curve from the holdout test set in feature selection (AUCs: ROC= 0.8157; PRC= 0.1837), where the dotted lines represent the performance of an uninformative model (ROC= 0.50; PRC= 0.0435).
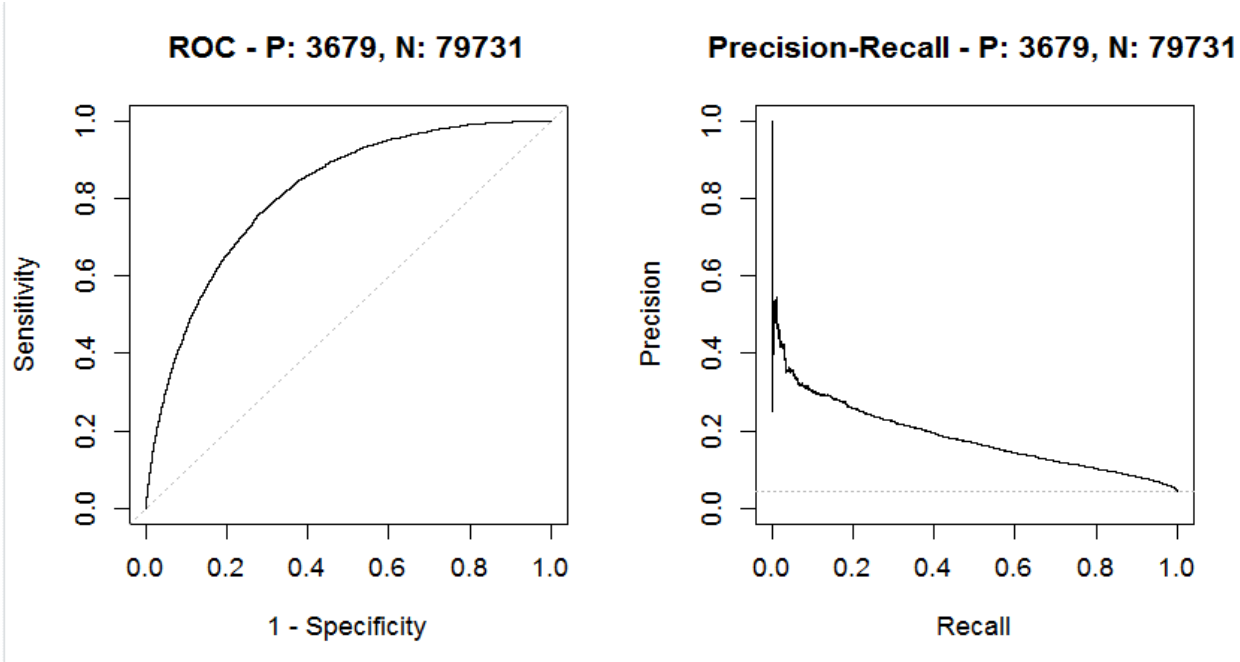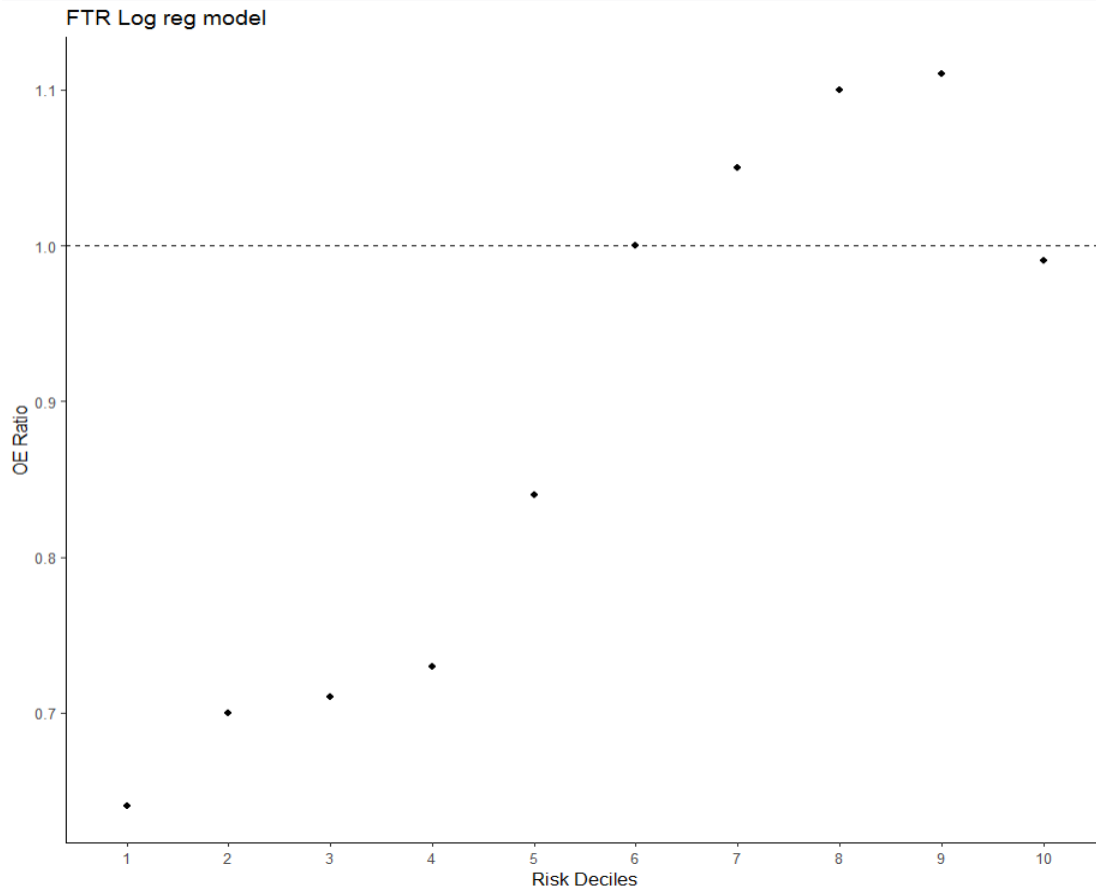
FIGURE 3 shows the Hosmer-Lemeshow decile calibration plot from the final risk-adjustment model. The results show overestimation of risk among low-risk patients in the bottom five deciles (i.e., death rates under 2%), but accurate estimation among high-risk patients in the top five deciles, with death rates over 2%. Alternative link functions are being tested to better account for the overestimation of risk among low-risk patients.

FTR Log reg model

decile	o_e_ratio	num_obs	num_exp	numrecs	Event rate	% of events
1	0.64	60	93.2	41706	0.14%	0.33%
2	0.7	158	226.	41705	0.38%	0.87%
3	0.71	292	410.	41706	0.70%	1.61%
4	0.73	448	613.	41705	1.07%	2.47%
5	0.84	702	837.	41705	1.68%	3.87%
6	1	1120	1123.	41706	2.69%	6.17%
7	1.05	1591	1520.	41705	3.81%	8.76%
8	1.1	2341	2126.	41706	5.61%	12.90%
9	1.11	3621	3270.	41705	8.68%	19.95%
10	0.99	7819	7934.	41705	18.75%	43.08%